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FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )

)  
Amendment of the Commission's )  
Rules To Establish New Personal )  
Communications Services )

) GEN Docket No. 90-314  
) ET Docket No. 92-100  
)

**SUPPLEMENTAL COMMENTS OF TELOCATOR ON WINFORUM  
SPECTRUM ETIQUETTE FOR UNLICENSED PCS DEVICES**

Telocator, the Personal Communications Industry Association, has reviewed the latest WINForum submission to the FCC (June 21, 1993) regarding a spectrum etiquette for unlicensed PCS devices and offers these comments.

**I. SUMMARY**

Telocator continues to view a spectrum etiquette as a set of defined procedures which allow diverse users to equitably, efficiently, and productively share common unlicensed spectrum. It

The current WINForum submission to the FCC, while more complete than the previous work in progress (as filed on May 18, 1993), continues to create areas of concern to Telocator. Because Telocator supports the development of technical requirements in open/public fora (e.g., standards processes), it believes that further scrutiny of the spectrum etiquette must be pursued in a technical forum that is open to all interested parties such that they are free to participate and contribute and have access to work in progress. The technical analysis necessary to this process is particularly ill-suited to the formal, written comment and reply procedures before the Commission. However, the WINForum proposal at hand continues to be a valid starting point.

## **II. CONTINUED CONCERNS REGARDING TECHNICAL MERIT**

First, and most important, there continues to be little explanation of how WINForum's proposed etiquette was developed. As Telocator has previously observed, the development of a spectrum etiquette will be complicated and require difficult technical trade-offs. Without an indepth discussion and exposition of the rationale for the proposed etiquette and the basis for the trade-offs made, it is nearly impossible to assess whether this etiquette can meet the aforementioned objectives of a spectrum etiquette.

Second, in its own comments in response to the Notice, WINForum filed a substantially revised version of the etiquette in which many of the open issues from the previously filed version are

claimed to have been resolved. This new material was presented with the same limited explanation as the earlier submissions and must be carefully analyzed and weighed before an informed, technical assessment of the proposal can be reached. The time frame of the present pleading cycle has not allowed an opportunity for such an analysis to be undertaken.

However, initial analysis reveals some issues that must be commented upon.

### **III. DISCUSSION OF CONCERNS**

#### **A. Adjacent Channel Concerns**

The proposed etiquette does not address adequately the potential for unlicensed PCS devices to interfere with or receive interference from those services that are present at the edges of the proposed allocation for unlicensed PCS. This interference can be of two types: either to/from licensed PCS or to/from licensed OFS microwave.

While the proposed WINForum etiquette addresses emission limits for intra sub-band interference in Section 2.3, Emission Limits, it does not explicitly state emission limits for out-of-band emissions below 1910 MHz or above 1930 MHz. Telocator believes that this issue must be completed prior to adoption of an etiquette. It should also be noted that, while other organizations (such as UTAM) are addressing clearing of the unlicensed band, the etiquette proposal must include recognition of the out-of-band

adjacent channel interference potential with OFS microwave in the event that clearing of out-of-band OFS microwave is delayed or proves impractical.

**B. Emission Mask**

Related to adjacent channel issues is the requirement for specification of appropriate emission masks. The etiquette allows for a transmitted signal up to 10 MHz wide. Telocator questions whether a device 10 MHz wide can be designed that meets the proposed emission limits. In discussion, WINForum agrees with the question about practical realization; however, WINForum argues against specific guard bands so as not to limit innovation with a preset bandwidth for the asynchronous sub-band. Telocator supports the concept of not limiting innovation in unlicensed PCS, but believes that technical specifications related to emission masks must be stated precisely.

While Section 2.3.1 provides a precisely stated limit between adjacent 1.25 MHz channels within the isochronous sub-band, and while Section 2.3.2 provides a precisely stated limit between the isochronous and asynchronous sub-bands, the proposal omits an explicitly stated limit for two important cases:

- between multiple narrow band channels operating within a single 1.25 MHz segment within the isochronous sub-band;  
and

- between multiple asynchronous channels of differing sizes operating within the 10 MHz asynchronous sub-band.

These considerations should be addressed.

**C. Channelization**

The proposed channelization for the isochronous sub-band may favor certain system architecture technologies over other system technologies. Telocator recognizes there is a trade-off between channel bandwidths, frequency reuse, and system capacity. In our discussions with WINForum, they have stated that the proposed bandwidths represent a compromise among these factors.

Telocator believes that further open dialog is required to understand which system technologies are either compatible or incompatible with the proposed etiquette. For example, some spread spectrum technologies may be incompatible with the etiquette.

**D. Violation of Listen-Before-Talk Rules**

In an uncontrolled sharing environment, the adherence to a spectrum etiquette is essential. The proposal's key concept is adherence to a list-before-talk protocol. However, paragraph 5.1.1 apparently allows for suspension of this rigid listen-before-talk rule. Telocator has discussed this with WINForum and the consensus is that the wording of this section of the etiquette inadvertently creates this confusion and requires correction.

E. Monopolization

The proposal does not contain specifically stated monopolization rules to prohibit band monopolization. Telocator has discussed this with WINForum, which believes that Sections 1.2.5. 4.3

especially when the etiquette is a most critical component to the success of unlicensed PCS. Deployment of equipment using an etiquette that does not work will adversely impact unlicensed PCS and will slow adoption by end users if it occurs in the infancy of unlicensed PCS. From the customer's perspective, adoption of an etiquette that cannot stand up to the rigors of a mature, substantially deployed unlicensed PCS could have even worse consequences.

#### IV. CONCLUSION

Telocator believes that actions consistent with the foregoing will serve the public interest. Accordingly, Telocator urges the Commission, WINForum and all interested industry parties to proceed expeditiously to address these concerns.

Respectfully submitted,

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